

What is this I hear about Phytochemicals?

Most everyone knows that fruits and vegetables are good for your health. They provide many vitamins, minerals, fiber and can help control weight. But, many people don't know that fruits and vegetables contain phytochemicals.

So, what are phytochemicals? Phytochemicals, meaning “plant chemicals” are substances that exist in fruits, vegetables, and whole grains. They may help protect against cancer, heart disease, and other diseases. Phytochemicals help protect us by keeping our cell chemistry stable, or in other words, they act as antioxidants. Antioxidants get rid of free radicals, which damage cells. Phytochemicals help to prevent cancer in a number of different ways, some of which are related to their antioxidant properties. Some phytochemicals may protect against heart disease by influencing blood pressure and blood clotting.

Researchers believe that phytochemicals work in conjunction with other phytochemicals, vitamins, minerals, fiber, and other compounds in foods. So, it's important that you get a wide variety of foods in order to get all of the potential benefits.

Adapted from UC Berkley Wellness Letter, April 1999

FOODS	PHYTOCHEMICALS	POSSIBLE BENEFITS
Berries blueberries, strawberries, raspberries blackberries, currants, etc.	Anthocyanidins, ellagic acid	Both act as antioxidants, thus as anti-cancer substances that may help protect cells. Anthocyanidins may help protect against heart disease. Berries are also rich in soluble fiber, which may help lower cholesterol.
Chili Peppers	Capsaicin, which gives peppers their heat	Capsaicin may be an antioxidant or otherwise interfere with cancer dev. May help prevent blood clotting. Chili Peppers are also rich in vitamin C.
Citrus Fruits oranges, grapefruit, lemons, limes, etc.	Flavanones such as hesperitin; coumarins; D-limonene; carotenoids; flavonoids such as tangeretin and nobiletin	D-limonene, in citrus skin, can leach into the juice and may detoxify cancer promoters. Carotenoids may also fight cancer. Flavonoids act as antioxidants and may inhibit blood clotting.
Cruciferous Vegetables broccoli, broccoli sprouts, Brussels sprouts, kale, cabbage, cauliflower, etc.	Indoles; isothiocyanates such as sulphoraphane; carotenoids such as beta carotene	Sulphoraphane may neutralize cancer-causing chemicals that damage cells; also interferes with tumor growth. Indoles act to make estrogen less potent which may reduce the risk of breast cancer.
Flax seeds, flour	Lignans	Lignans are converted to a form of estrogen in the body and are thought to have some protective effect against cancer. (Lignans not in flaxseed oil).
Garlic Family garlic, onions, shallots, leeks, chives, scallions	Allylic sulfides, other sulfur compounds, flavonoids	Adds flavor & zest to other foods. May work against carcinogens & tumors in many ways. May also benefit the heart. Supplements are unproven and not recommended.
Herbs & Spices rosemary, sage, thyme, oregano, ginger, cumin, etc.	Carnasol, phenols, curcumin, gingerols, terpenoids, etc.	Major benefit: adding flavor & zest to other foods. May act as antioxidants & anti-cancer agents.
Legumes lima, kidney, navy, & other beans, lentils, etc.	Isoflavonoids, phytic acid, saponins, phytosterols	Anti-cancer activity; protection against heart disease. Phytosterols may protect against colon cancer. Beans contain folic acid and soluble fiber, which may reduce blood cholesterol.
Nuts cashews, almonds, walnuts, chestnuts, etc.	Ellagic acid, saponins	Potential benefits to the heart may come from these chemical or the beneficial fats (poly- and monounsaturated) in nuts. Consume nuts in moderation since they are high in calories and fat.
Orange & Yellow Fruits And Vegetables; Leafy Greens apricots, papaya, sweet potatoes, mangoes, carrots, spinach, corn, pumpkin, sweet peppers, etc.	Carotenoids such as beta carotene, lutein, zeaxanthin	Many anticancer functions; strengthen the immune system; protect the retina from harmful radiation, thus reducing risk of macular degeneration. These fruits & vegetables are also rich in vitamin C, other vitamins, minerals, & fiber.
Red Grapes, Red Wine	Flavonols, such as quercetin; resveratrol, anthocyanidins, ellagic acid	Resveratrol may prevent damage to cells & curb tumor growth, reduce risk of skin cancer, & have beneficial effects on blood cholesterol. Quercetin may benefit the heart. Anthocyanidins & ellagic acid are antioxidants. Grapes, juice & wine may have diff. effects.
Soy (also a legume) tofu, soy milk, soybeans,	Isoflavonoids such as daidzein & genistein; lignans; saponins, soy protein, etc.	Isoflavonoids & lignans convert to a kind of estrogen in the body & provide a protective effect against cancer. Saponins & phytosterols also have anti-cancer activity.
Tea green, black, oolong, but not herb tea	Flavonols such as catechins & EGCG, plus other flavonoids	Tea, particularly green tea, may reduce risks of many cancers. Flavonols in tea combat cancer in many ways. Catechins may protect arteries from plaque build-up. Flavonoids in tea may lower blood cholesterol.
Tomatoes	Carotenoids, chiefly lycopene (also found, in much smaller amounts, in red peppers, pink grapefruit, guava, watermelon)	High intake, especially of cooked or processed tomatoes, may reduce risk of prostate & other cancers. Lycopene may fight cancer in several ways, including lowering potency of testosterone. Tomatoes also contain vitamin C.
Whole Grains whole wheat, oats, barley, rye, brown rice, etc.	Saponins, terpenoids, phytic acid, ellagic acid, phytoestrogens	Saponins may neutralize cancer-causing substances in the intestine. Terpenoids & phytic acid may help reduce heart disease & cancer risk. Also rich in fiber, which helps lower blood cholesterol & colon cancer.